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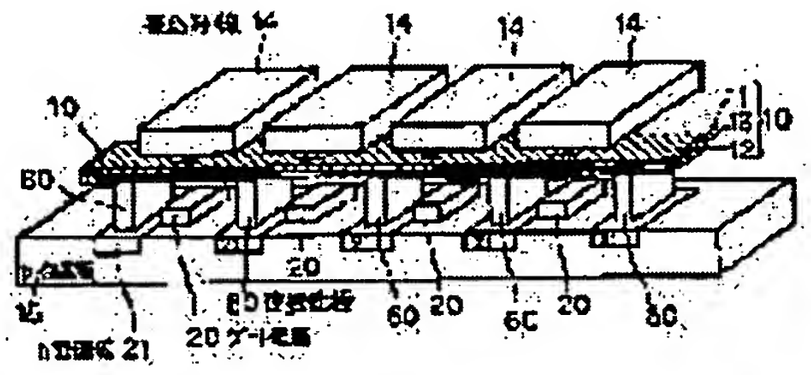
(71)Applicant : **CANON INC**
(72)Inventor : **NISHIMURA NAOKI**

(54) MAGNETIC THIN FILM MEMORY, METHOD FOR READING OUT MAGNETIC THIN FILM MEMORY, AND METHOD FOR WRITING TO MAGNETIC THIN FILM MEMORY

(57)Abstract:
PROBLEM TO BE SOLVED: To reduce the number of wirings of a memory cell and simplify a structure by constituting a magnetic semiconductor hybrid of a field effect transistor and a magnetic resistor connected in parallel to the field effect transistor.
SOLUTION: Source electrodes and drain electrodes of adjacent MOSFETs are used as common electrodes. One contact hole for connecting a p type Si substrate 15 and a magnetic resistor 10 is enough for one memory cell. Two wirings, i.e., a write line 14 and a word line 20 connected to a gate electrode are enough to constitute one memory cell. There is no need of providing a, field oxidation film area to separate memories. At the write time, a current is sent to the write line 14 and a right or left magnetic field is impressed to the magnetic resistor 10, whereby '0' or '1' digital information is written. An insulator is arranged between the magnetic resistor 10 and write line 14 to increase an intensity of the generated magnetic field, so that the information is surely written.



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